A Remark on A Remark on Neutrino Oscillations Observed in KamLAND Experiment.

Anatoly Kopylov
Institute of Nuclear Research of Russian Academy of Sciences
117312 Moscow, Prospect of 60th Anniversary of October Revolution 7A

Abstract

It is shown that equal magnitudes of the transitions $\bar{\nu}_e \to \bar{\nu}_\mu$ and $\bar{\nu}_e \to \bar{\nu}_\tau$ in the disappearance of reactor $\bar{\nu}_e$ discovered in the KamLAND experiment just follows at $\theta_{23} = \pi/4$ and $\theta_{13} = 0$ from pure symmetry of ν_μ and ν_τ states relatively the mass states.

It was shown in [1] by the expressions (1)-(23) that in the disappearance of reactor antineutrinos, discovered in the KamLAND experiment [2] the transitions $\bar{\nu}_e \to \bar{\nu}_\mu$ and $\bar{\nu}_e \to \bar{\nu}_\tau$ have equal magnitudes. The PMNS mixing matrix has absolutely symmetrical lines for ν_μ and ν_τ relatively the mass states at $\theta_{23} = \pi/4$ and $\theta_{13} = 0$. Good illustrations of this are presented, for example, in [3]. It means that by superimposing the system with the difference of phases between mass states 1 and 2 accumulated in propagation of ν_e in terms of the flavor states ν_e, ν_μ and ν_τ, we have no preference of ν_μ over ν_τ and vice versa. This proves that the magnitudes of the transitions $\bar{\nu}_e \to \bar{\nu}_\mu$ and $\bar{\nu}_e \to \bar{\nu}_\tau$ are indeed equal.

References

[1] S.M.Bilenky, *hep-ph/0407125*

[2] T.Araki et al KamLAND Collaboration, *hep-ex/0406035*

[3] O.Mena and S.Parke, *hep-ph/0312131*